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ABSTRACT

A training program was held in November 1970 for selected Delaware supervisors, administrators, department chairmen, and State Department of Public Instruction personnel to instruct them in the skills needed to write performance objectives. Participants were expected to develop and field test sequences of their choice and to serve as resource people for curriculum committees. Periodic visits were made by the Department of Public Instruction to assess programs and provide assistance. If participants completed the assignment of developing a trial sequence and gathering data, they were invited to a followup session in May. In several districts, curricular revisions were initiated and workshops conducted for district and/or building faculties. (Pages 39-44 may reproduce poorly.) (Author)

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Final Report

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Grant Number OEG-0-70-4488

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A TRAINING PROGRAM FOR SUPERVISORS FOR EVOLVEMENT OF SKILLS IN CURRICULUM DEVELOPMENT AND EVALUATION

September 30, 1971

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education
National Center for Educational Research and Development
Planning, Research and Evaluation Branch

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
National Center for Educational Research and Development
Planning, Research and Evaluation Branch

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FINAL REPORT

A TRAINING PROGRAM FOR SELECTED DELAWARE SUPERVISORS FOR EVOLVEMENT OF SKILLS IN CURRICULUM DEVELOPMENT AND EVALUATION

Background -

In June 1970 the Delaware State Department of Public Instruction was awarded a grant by the National Center for Educational Research and Development to train those persons in the schools who had major responsibility for curriculum development in mathematics, science, and humanities and selected State-level supervisors in the skills needed to develop performance-oriented curricula. These individuals were in turn expected to train others as well as apply the acquired skills in improvement of their leadership roles in the districts. In the elapsed year, several ramifications have occurred which may have far-reaching effects on the educational picture in Delaware. The following is a report of the activities which have taken place during the grant period and immediately thereafter.

Project Instructors -

Dr. Henry Walbesser - University of Maryland
Dr. J. David Lockard - University of Maryland
Dr. James Raths - University of Maryland
Dr. Robert Uffelman - University of Delaware

Project Directors -

Mrs. Charlotte H. Purnell - State Science Supervisor, Department of Public Instruction (at time of project)
Dr. Randall L. Broyles - Director, Secondary Education, Department of Public Instruction (at time of project)

Project Coordinators -

Mr. James Gervan - State Art Supervisor, Department of Public Instruction
Mr. Garland Gingerich - State Supervisor, Instructional Programs and Curriculum Development, Vocational Education
Mr. John Reiher - Project Director, Retraining Program for Junior High School Science Teachers
Mr. Ralph Mahan - State Supervisor of Mathematics, State Department of Public Instruction
Mr. Donald Knouse - State Supervisor of Social Studies

Seminar Leaders -

November 1970

Dr. Edwin Kurtz, Kansas State Teachers College, Emporia, Kansas
Dr. Gilbert Austin, U.S. Office of Education
Dr. Leonard Cohen, Educational Testing Service, Princeton, N.J.

May 1971

Dr. Malcolm Clarke, Clarke and Cook Associates, Washington, D.C.

Phase I - Organizational and Pre-session Meeting (October 1970)

An organizational and pre-session meeting was held at the University of Maryland with the Project Instructors, Directors and Coordinators. The role and responsibility of each team member was outlined in detail at this meeting. The agenda for the November meeting was planned, materials needed for the group were decided upon, and instructional evaluation and reporting procedures modified and refined to fit the composition of the group. It was decided that Mrs. Purnell and Mr. Reiher would be responsible for all matters related to organization and administration, Mr. Gingerich, Mr. Gervan, Mr. Knouse, and Mr. Mahan would work with each of the project instructors in checking and evaluating the work of the participants and Dr. Broyles would assume the overall coordination of the project.

In addition, six (6) out-of-state participants were invited who also met the established criteria.

Participant Selection -

Each of the 23 districts was assigned a quota based on the population of the district and the chief school officer was asked to nominate the individuals whom he felt would profit most from such exposure and who met the criteria set forth in the proposal. (See appendix for letter of invitation.) In some cases, practicing teachers were nominated since they were expected to assume department head responsibilities during the coming year or were already serving in such a capacity; however, the majority of participants were those in active leadership roles in the districts or State Department of Public Instruction.

Each of the 67 participants (representing 21 districts, the Delaware State Department of Public Instruction, Missouri State Department of Education, Wisconsin State Department of Education, University of Rhode Island, Rhode Island Department of Education and West Chester Pennsylvania Unified Schools) was notified of his acceptance to the program, the schedule of activities, the expectations and outcomes. (See appendix for participant letter and list of participants.)

Phase II - Intensive Training Program (November 1970)

The participants were divided into three groups and each group assigned an instructor and assistant. The trainees were each provided with the following materials:

A. Books:

Gagne, Robert M. The Conditions of Learning. Second Edition. New York, Chicago, San Franciso, Atlanta, Dallas, Montreal, London, Sydney: Holt, Rinehart and Winston, Incorporated, 1965.

Mager, Robert F. Developing Attitude Toward Learning. Palo Alto: Fearon Publishers, 1962.

Nedelsky, Leo. Science Teaching and Testing. New York, Chicago, San Francisco, Atlanta: Harcourt, Brace and World, Incorporated, 1965.

Walbesser, Henry H. Constructing Behavioral Objectives. Second Edition. The Bureau of Educational Research and Field Services, College of Education, University of Maryland, College Park, Maryland, 1970.

B. Books: Parts of Series

Brandwein, Cooper, Blackwood, Hone. Behavioral Objectives in Concept Seeking of the Concepts in Science Series. Harcourt, Brace and World, 1970.

In addition, a library of multiple copies of the following was available:

A. Books:

Bloom, Benjamin S., Max D. Engelhart, Edward J. Furst, Walker H. Hill and David R. Krathwohl. Taxonomy of Behavioral Objectives - The Classification of Educational Goals - Handbook I: Cognitive Domain. New York: David McKay, Incorporated, 1956.

Kibler, Robert J., Larry L. Barker, David T. Miles. Behavioral Objectives and Instruction. Second Edition. Boston: Allyn and Bacon, Incorporated, 1970.

Krathwohl, David R., Benjamin S. Bloom, and Bertram B. Masia. Taxonomy of Educational Objectives: The Classification of Educational Goals - Handbook II; Affective Domain. New York: David McKay Company, Inc. 1956.

B. Publications of Learned Societies:

National Science Teachers Association, How to Use Behavioral Objectives in Science Instruction. Karan, John J., Jr.; Earl J. Montague, and Gene E. Hall. Science Education Center, The University of Texas, Dallas: 1969

National Science Teachers Association, National Science Supervisors Association. Eiss, Albert F. and Mary Blatt Harbeck. Behavioral Objectives in the Affective Domain. Washington: 1969.

C. Filmstrips:

Popham, W. James and Eva L. Baker, A Curriculum Rationale, Analyzing Learning Outcomes, Appropriate Practice, Defining Content for Objectives, Educational Objectives, Establishing Performance Standards, Evaluation, Identifying Affective Objectives, Knowledge of Results, Perceived Purpose, Selecting Appropriate Educational Objectives, Systematic Instructional Decision Making, and Teaching Units and Lesson Plans. University of California, Los Angeles.

The major basis for training was Constructing Behavioral Objectives, an individualized, task-oriented book. Each individual was encouraged to proceed at his own rate and when applicable cite examples from his own area of responsibility.

When each task was completed responses were checked by the group leader or assistant and individual advised to proceed or recycle for further work.

Drs. Walbesser, Raths, and Lockard conducted several large group sessions with Dr. Edwin Kurtz, Dr. Leonard Cohen, and Dr. Gilbert Austin presenting three evening seminars. (See appendix for daily schedule and seminar topics.)

Task 19 in Constructing Behavioral Objectives calls for the development of a hierarchy sequence in an area of the participant's choice, trying out the material in a classroom situation, gathering data on the material and revising in terms of the data. The completion of the task by the participants was the basic criterion to be considered for the follow-up session. In addition, the three inservice credits which the Delaware State Department of Public Instruction had agreed to offer upon completion of all requirements would be given only to those attending the follow-up session.

Phase III - Interim Sessions in Districts and State Department of Public Instruction Follow-up Activities

At the close of the November session, it was announced to all participants that the content area supervisors would visit them to assist and assess progress. Participants were encouraged to apply their skills and conduct their own workshops for their respective staffs.

Several participants said that it was unrealistic to repeat the training they had received since time would be unavailable for an entire staff or even a partial one and district resources could not cover the expense in the summer. The staff of the project was, therefore, asked to adapt the materials presented so that sessions could be held of one-half day, full day, and a three-day series with sessions spaced several weeks apart. In response to the request, materials were prepared and sent to the districts for their use. (See appendix for samples of adapted material and outline of sessions.) The districts were also informed that the library materials were available for their use.

As a consequence, the supervisors from the following districts conducted sessions for their staffs using the formats as adapted:

1. Newark
2. Alfred I. DuPont
3. Appoquinimink
4. De La Warr
5. Woodbridge
6. Seaford
7. Indian River

In all, about 400 additional teachers were introduced to the concept of performance objectives. Under their supervisors' direction some progress was made toward moving the classroom teacher to think in performance oriented terms and begin to try out the ideas in their own classrooms. While it is too optimistic to assume that performance objectives, assessment tasks, hierarchies and related activities have become an integral part of the teaching practices of the four hundred teachers thus exposed, routine visits made by Department of Public Instruction supervisors report that teachers are now cognizant of the idea and many are attempting to rethink their programs. This outcome in itself is noteworthy and, with reinforcement from the trainees of the November session, can become stronger.

To follow up the November session, each Department of Public Instruction supervisor was assigned five participants to visit during early spring. A checklist was developed so that progress could be measured, decisions made on the kind of follow-up session needed in May, and the kind of additional assistance or encouragement which might be needed. (See appendix for checklist and example of assignment sheet.) The supervisors were also instructed to bring back any completed work and anecdotally comment on the use of it. If nothing was in progress, each supervisor worked with his assignees until Task 19 completed. One example of Task 19 is included in the appendix.

Phase IV - Follow-up Session (May 1971)

Based on the reports of the content supervisors, invitations to the follow-up session were issued to 54 of the original trainees. Of this number, 47 attended the session at the Henlopen Hotel, Rehoboth Beach, on May 26, 27, and 28.

In addition to having the consultants critique their work, in the cognitive area a number of participants expressed a desire for work in the affective and psychomotive domains. Interest was also expressed in an evaluation of the many objectives available commercially and how these could be used in existent programs.

Accordingly, several sessions were scheduled both as group presentations and individual tasks. (See appendix for agenda of meeting.)

In spite of the initial training and visits by the supervisors, several of the group still did not demonstrate competency in their abilities to write behavorial objectives. These individuals were recycled back into the task needed for remedial work. Others had attempted to apply their skills as directed by Task 19 in Conducting Behavioral Objectives but failed to sequence their work, develop appropriate assessment tasks, or construct activities to meet the objectives. This group worked directly with the consultants in improving their work. The work on Task 19 for the remainder of the group was acceptable (see appendix for examples of Task 19); therefore, they were divided into two groups to work on tasks aimed at the affective and psychomotor domains.

Dr. Malcolm Clarke presented one evening seminar on "Using PERT as a Tool for Curriculum Management." The other seminar was presented by Dr. J. David Lockard on "Pros and Cons of Behavioral Objectives." This seminar was designed to elicit group interaction rather than as a formal lecture.

At the close of this session, the participants were asked to indicate their plans for the coming year. Almost all stated affirmative intentions although for some the form was nebulous. It was suggested that the Department of Public Instruction initiate these sessions in the home district of the trainees and be assisted by the participants. It was agreed that this responsibility would be undertaken for the content area supervisor.

Phase V - Outcomes

Although considerable interest was registered at the May session, it is too early to determine the nature and extent of these intentions; however, four projects have been generated and implemented to date.

Seaford District -

The participants from this district using adaptations of Constructing Behavioral Objectives conducted a one-week session for their middle school teachers. As a result each teacher

developed a teaching unit during the second week of the program. These units will be tried out during the first week of school and during the district inservice days modified as based on field trials. (See appendix.)

Career Education -

Delaware has established as its top priority a program of career education for its schools. Based on the philosophy that all education is career education, therefore, all education should be performance oriented, four pilot schools were selected to begin development of 9-12 performance-oriented programs. Teachers of mathematics, science, English, and social studies who were interested were brought together in August. The trainees from the November session who were in the pilot schools served as group leaders to assist their colleagues in mastering the skills needed. From this point forward a consultant from the career education project will be responsible for further development and implementation. (See appendix.)

Wilmington -

Under the direction of one of the participants, a task-oriented social studies program has been developed for primary (grade 1) level. This material is to be field tested during 1971-72.

Woodbridge -

The participants from the Woodbridge district served as resource people and consultants to the curriculum committee for elementary mathematics. This was a K-6 program and was intended to be used as a non-graded program. This material will be used on a try-out basis in 1971-72 school year.

Alfred I. DuPont -

The three inservice days following the November session were devoted to using the trainees to conduct mini-sessions for the faculties of their respective buildings. Between sessions the participants served as resource people to curriculum committees in their buildings. From these meetings are emerging the nuclei of a non-graded high school.

Department of Public Instruction -

A number of individuals commented that they had some background in performance objectives. It was suggested that a pre-test should be given so that they could assess their weak areas and in turn only concentrate on work in these areas. If this was done they could spend more time interacting with the consultants and applying their skills to content areas. In response to this, a pre-test has been developed by Dr. Randall Broyles, Assistant Superintendent, Department of Public Instruction. This has not been tried out or rewritten so it is unavailable for release at this time. It is hoped that when sufficient data is gathered, this will be a useful instrument for structuring workshops. When validation has occurred, this document will also be forwarded to U.S.O.E.

Appendix

Letter of Invitation to Individual Participants

Sent October 1970

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

DOVER, DELAWARE 19901

KENNETH C. MADDEN
STATE SUPERINTENDENT
PUBLIC INSTRUCTION

F. NIEL POSTLETHWAIT
DEPUTY STATE SUPERINTENDENT

ROGER C. MOWREY
PAUL M. HODGSON
HOWARD E. ROW
ASSISTANT SUPERINTENDENTS

Dear

has informed us that you have been recommended to attend the Training Program for Selected Delaware Supervisors for Evolvement of Skills in in Curriculum Development and Evaluation from November 16 through 20. The entire program, with the exception of the dinner functions, will be held at Buena Vista, a state-owned estate about 1½ - 2 miles south of the junction of routes U. S. 40 and U.S. 13 on U.S. Route 13. The evening sessions will be held at the local restaurants as indicated by the accompanying agenda.

The intent of the program is to improve your skills in writing behavioral objectives, designing assessment tasks, applying Gagne's Conditions of Learning to your particular needs, and in general, equip you with the tools to write programs which have built-in accountability measures. To accomplish these goals, we have been able to secure foremost experts in the field of accountability. Dr. Henry Walbesser, Dr. David Lockhard, Dr. James Raths, all of the University of Maryland and Dr. Robert Uffelman of the University of Delaware, who have outstanding reputations for their leadership in this area, have agreed to serve as our major consultants. Dr. Walbesser has written a series of programm activities for you which can be used as part of your local inservice programs. In addition, three consultants have been contacted for special topics. The program as scheduled is a sequential one with each step dependent on the previous one; therefore, attendance at all daily sessions is necessary. As a guide for progress the accompanying agenda is attached.

All materials, texts, and equipment will be provided for you as part of the grant. For those people who require living accommodations, single rooms have been reserved at the Gateway Motel, Route U. S. 13 at I-95. The cost of these rooms will be covered by the grant. If you would prefer to live at home, your mileage to and from your home will be paid. In addition, all dinner costs will be provided. For your convenience a cash bar will be set-up during the scheduled social hours. Breakfast will also be included for those who desire it but by State accounting rules lunch can not be included; therefore, we will make luncheon arrangements at minimal cost to you.

On the attached card would you please supply the requested information. Please

note that if you can not attend any one of the evening sessions, we should know at least one week in advance since we have contractual arrangements with the restaurants for all participants in the program.

The program promises to be a stimulating one with tremendous carry-over to your local situations. At the training session, plans for follow-up programs in your districts will be discussed should you desire to make arrangements. We feel that the experience, though fast-paced, will be an exciting and rewarding one while providing a deeper insight into the learning process.

Sincerely yours,

CHP:va

Charlotte H. Purnell
State Supervisor of Science

Appendix

Initial Letter of Introduction to Chief School Officers

Sent October 1970

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

DOVER, DELAWARE 19901

KENNETH C. MADDEN
STATE SUPERINTENDENT
PUBLIC INSTRUCTION

F. NIEL POSTLETHWAIT
DEPUTY STATE SUPERINTENDENT

ROGER C. MOWREY
PAUL M. HODGSON
HOWARD E. ROW
ASSISTANT SUPERINTENDENTS

Dear

One of the major problems faced by personnel charged with the responsibility for curriculum development is the acquisition of the skills needed to develop objectives, selections of materials to meet the objectives, and the designing of criteria to determine if the objectives have been met. Within the past few years considerable expenditure of federal monies has been used for the development of various curricular projects and innovative ideas. All too often, projects are sent to the Department of Public Instruction or federal agencies with the objectives stated in nebulous terms with little attention to evaluative criteria or the means to validate the objectives.

The State Department of Public Instruction has been awarded a grant by the Bureau of Research of the U. S. Office of Education to train those individuals in the districts who have major responsibility for curriculum development. The grant provides for an intensive, five-day training session from November 16-20, plus a three-day follow-up meeting in May, 1971. Dr. Henry Walbesser of the University of Maryland has agreed to conduct the training sessions. Dr. Walbesser is probably best known for his work in mathematics education and his application of Gagne's writings to a practical, useable tool for curriculum development. In addition to Dr. Walbesser, other outstanding consultants in their fields, such as Dr. David Lockard, Dr. Edwin Kurtz, Dr. Leonard Cohen and others, will assist with the instruction or serve as seminar leaders. Dr. Walbesser has written a series as assessment tasks for each participant to use on an individual basis and to apply these tasks to his own area.

The workshop will be held in the Wilmington area. All participants will be supported for overnight accommodations, two meals per day, books and materials, mileage, and any other costs incurred. Since we are limited on the number of individuals who can be accommodated,

the quota of participants for your district is _____. The selection of the individuals is at your recommendation within the following criteria:

a) Major responsibility for curriculum development in areas of mathematics, science and/or humanities.

b) Eligibility includes such individuals as supervisors, directors, building principals, department heads or administrative assistants.

c) Actively engaged or intend to engage in a curriculum project.

We are quite excited about the project since it presages many activities which are critically needed within the school communities. With the concept of accountability for instructional practices in the schools becoming a reality, it is imperative that individuals within the districts and schools be trained to write curriculum projects in precise language with measurable objectives.

Following the initial training session, it is the intent of the content area supervisors to work closely with the participants in the districts. Present plans within the Department call for the formulation of a team to duplicate the training session should a district desire to offer this type of training to its staff.

It is felt that through this effort many teachers could also be trained in the skills of curriculum development and thus enable to develop better classroom programs.

Sincerely yours,

Charlotte H. Purnell
State Supervisor of Science

CHP:vm
cc: Dr. K. Madden
Dr. P. Hodgson
Dr. R. Broyles

Appendix

Agenda

Training Session

November 16-20, 1970

A TRAINING PROGRAM FOR SELECTED DELAWARE SUPERVISORS FOR
EVOLVEMENT OF SKILLS IN CURRICULUM DEVELOPMENT
AND EVALUATION

AGENDA

Monday - November 16, 1970

9:00 - 9:30 A.M. — Registration

9:30 - 10:30 A.M. — First General Session

10:30 - 12:00 noon — Work Group

a) Read pp. 83-84, Constructing Behavioral Objectives (C.B.O.)

b) Objective 1, p. 85
"Mind the Objective Even Though It Is a Simple One"

c) Assessment Task, Objective 1, p. 156

d) Read pp. 1-82 (C.B.O.)

12:00 noon - 1:30 P.M. — Lunch

1:30 - 4:30 P.M. — Work Group

a) Finish pp. 1-82 (C.B.O.)

b) Objective 2, p. 87, "Mind the Objectives"

c) Assessment Task, Objective 2, p. 157

d) Objective 3, p. 89
"The Prerequisite Behaviors Count Also"

e) Assessment Task, Objective 3, p. 159

5:00 - 6:30 P.M. — Social Hour

Arsenal-on-the-Green
The Green
New Castle, Delaware

Tuesday - November 17, 1970

9:00 - 12:00 noon

Work Group

a) Objective 4, p. 91 (C.B.O.)
"Remember the Objectives ----
It Helps"

b) Assessment Task, Objective 4, p. 160

c) Objective 5, p. 94 (C.B.O.)
"Using Past Performance"

d) Assessment Task, Objective 5, p. 161

e) Objective 6, p. 96 (C.B.O.)
"Watch for Performance Agreement"

f) Assessment Task, Objective 6, p. 162

g) Objective 7, p. 101 (C.B.O.)
"Performance Agreement Rides Again"

h) Assessment Task, Objective 7, p. 168

i) Objective 8, p. 104 (C.B.O.)
"Still Another Variation on the
Same Theme"

j) Assessment Task, Objective 8, p. 169

12:00 noon - 1:30 P.M.

Lunch

1:30 - 4:30 P.M.

Work Groups

a) Objective 9, p. 108 (C.B.O.)
"How Do You Recognize the Players
Without A Program"

b) Assessment Task, Objective 9, P. 170

c) Objective 10, p. 112 (C.B.O.)
"Assessment Task, Assessment Task,
What's an Assessment Task?"

d) Assessment Task, Objective 10, p. 171

5:30 - 6:30 P.M.

Social Hour

6:30 - 7:30 P.M.

DuBarry Room, Hotel DuPont
Dinner-DuBarry Room, Hotel DuPont

7:30 - 9:00 P.M.

Seminar - Dr. Edwin Kurtz
Kansas State University
"Evaluation in the Sciences"

Wednesday - November 18, 1970

9:00 - 10:00 A.M.

Second Group Session
"Conditions of Learning" -
Dr. Walbesser

10:00 - 12:00 noon

Work Groups

a) Objective 11, p. 114 (C.B.O.)
"Behavioral Objectives and the Conditions of Learning: A Potent Combination"

b) Objective 14, p. 125 up thru p.129
"Objectives Out of Instructional Narratives"

c) Assessment Task, Objective 11, p. 172

d) Objective 12, p. 116 (C.B.O.)
"Try Your Wings"

12:00 noon - 1:30 P.M.

Lunch

1:30 - 4:30 P.M.

Work Groups

a) Objective 13, p. 119 (C.B.O.)
"Stuck With a Definition of Your Own Making!"

b) Read p. 124

c) Assessment Task, Objective 13, p. 173

d) Objective 14, p. 130-133
"Objectives Out of Instructional Narratives"

e) Assessment Task, Objective 14, p. 174

5:30 - 6:30 P.M.

Social Hour

Kent Manor Inn

6:30 - 7:30 P.M.

Dinner-Kent Manor Inn

7:30 - 9:00 P.M.

Seminar - Dr. Leonard Cahen
Educational Testing Service
"Evaluation Techniques and Procedures"

Thursday, November 19, 1970

9:00 - 10:00 A.M.	Third General Session Dr. Walbesser, Dr. Raths "Quality of Objectives"
10:00 - 12:00 noon	Work Groups a) Objective 15, p. 134 (C.B.O.) "Try Your Wings Again" b) Objective 16, p. 137 (C.B.O.) "Trying Your Hand" c) Assessment Task, Objective 16, p.179
12:00 - 1:30 P.M.	Lunch
1:30 - 4:30 P.M.	Work Groups a) Objective 17, p. 148 (C.B.O.) "Designing for Success" b) Objective 18, p. 151, (C.B.O.) "Can You Tell Someone Else?"
5:30 - 6:30 P.M.	Social Hour Executive Club
6:30 - 7:30 P.M.	Dinner - Executive Club
7:30 - 9:00 P.M.	Seminar - Dr. Gilbert Austin U.S. Office of Education "Evaluation - Office of Education Point of View"

Friday, November 20, 1970

9:00 - 12:00 noon — Work Group

a) Objective 19, p. 153 (C.B.O.) "Putting It All Together"

b) Assessment Task, Objective 19, p. 186

12:00 - 1:30 P.M. — Lunch

1:30 - 2:15 P.M. — Work Groups

2:15 - 3:00 P.M. — Fourth General Session

3:00 - 3:15 P.M. — Summary

Appendix

Participants From Training Session

November 16-20, 1970

SUPERVISORY TRAINING PROGRAM

GROUP I

Assisted By: Dr. David Lockard, University of Maryland
Mr. John Reiher, Project Director, Junior High School Science Retraining Program

*1.	Cook, Lela J.	Marshallton-McKean District
2.	Driscall, Donald	Rhode Island
*3.	Eisenbise, Charles E.	Mount Pleasant District
4.	Ellis, Arthur	Seaford District
5.	Carey, Edwin	De La Warr
*6.	Geppert, William	Caesar Rodney District
7.	Glynn, Dr. Grace	Rhode Island
8.	Goodwill, Violet N.	Woodbridge District
9.	Haney, Paul	Alexis I. duPont District
10.	Johnson, Bertha	Appoquinimink District
11.	Judith, Sister	Diocese of Wilmington
12.	Kendall, Richard J.,III	Department of Public Instruction
13.	Lupin, Dr. Pearl S.	New Castle-Gunning Bedford District
*14.	Magann, D. P.	Wilmington Public Schools
15.	McCormich, William	Department of Public Instruction
16.	Natrin, Walter	Alfred I. duPont District
*17.	Ryan, John J.	Department of Public Instruction
18.	Sales, Dr. Fred	Stanton District
*19.	Tisinger, Claude	Caesar Rodney District
20.	Wagner, Carston	Department of Public Instruction
21.	Walzl, F. Neil	Newark District
22.	Ward, Don	Indian River District
23.	Warrington, Donald J.	Milford District
24.	Reed, Phillip	Wilmington

*Denotes possible Group IV

SUPERVISORY TRAINING PROGRAM

GROUP II

Assisted By: Dr. Henry Walbesser, University of Maryland
Mr. Ralph Mahan, Department of Public Instruction, Delaware

1.	Abell, Robert	Appoquinimink District
2.	Andrews, James	Alfred I. duPont District
3.	Badman, Atwood	Department of Public Instruction
4.	Benner, George	Caesar Rodney District
5.	Bolig, John	Department of Public Instruction
6.	Caldwell, Genelle	Department of Public Instruction
7.	Dailey, Eugene	Department of Public Instruction
*8.	Deputy, A. John	Seaford District
9.	Dowling, Dr. Kenneth	Wisconsin
*10.	Houpt, Gary	Department of Public Instruction
11.	Jeffries, Louise	Marshallton-McKean District
*12.	Johnson, Janet	New Castle-Gunning Bedford District
*13.	Justice, Margaret	Milford District
14.	Keen, George H.	Indian River District
*15.	Knighton, Walter B.	West Chester
16.	Koppenhaver, Larry	Smyrna District
17.	Markowitz, Sol	Lake Forest District
18.	Nejako, Frank	Alfred I. duPont District
19.	Scarnato, Dr. Samuel	Wilmington Public Schools
20.	Sherman, Lucille K.	Mount Pleasant District
21.	Shields, Mildred B.	Newark District
22.	Wilson, Hess	New Castle-Gunning Bedford District
23.	Collison, Sidney	Alexis I. duPont District
24.	Carlson, Paul	Newark District

*Denotes possible Group IV

SUPERVISORY TRAINING PROGRAM

GROUP III

Assisted By: Dr. James Raths, University of Maryland
Mr. James Gervan and Mr. Garland Gingerich, Department of Public Instruction, Delaware

1.	Arbaugh, Frank D.	Department of Public Instruction
*2.	Cobley, Thomas	Newark District
*3.	Farmer, Dale	Department of Public Instruction
4.	Fraser, Robert	Department of Public Instruction
*5.	Gallagher, Sister Irene	Diocese of Wilmington
6.	Harrison, Arrie	Wilmington Public Schools
7.	Hitchens, William	Seaford District
8.	Hooser, John	Missouri
*9.	Eldon, Homrick	De La Warr
10.	Kerr, James R.	Milford District
11.	Loftus, Dennis	Department of Public Instruction
12.	Parks, Charles	Woodbridge District
13.	Purnell, Dr. Richard	Rhode Island
14.	Roberts, Meredith	New Castle-Gunning Bedford District
15.	Rooney, Richard	Claymont District
16.	Schneck, Donald	Newark District
17.	Schoedler, James	Alfred I. duPont District
18.	Vincent, Edith	Department of Public Instruction
*19.	Waters, Alfred G.	Appoquinimink District
20.	Williams, Robert	Newark District
21.	Wray, Gary	Caesar Rodney District
22.	Young, John G.	Indian River District
23.	Fitzgerald, Ellen	Alfred I. duPont District

*Denotes possible Group IV

Appendix

Adaptations for Use By Districts For Inservice Workshop

FULL DAY SESSION

BEHAVIORAL OBJECTIVES

Objectives

At the end of this session participants will be able to identify components of a behavioral objective and write an acceptable behavioral objective given the definition of a behavioral objective.

Preparation

All participants should read Preparing Instructional Objectives by Robert Mager prior to attending the workshop.

Equipment Needed

Overhead projector
Screen
Tape recorder
Filmstrip projector
T-V monitor
Video tape recorder

Materials

Popham's filmstrip Educational Objectives.
Response sheets to filmstrips
Video tapes of Walbesser and Raths lecture
"Characteristics of Behavioral Objectives"
Worksheets for Objective 1,2 C.B.O.

Workshop Sequence (6 hours)

1. Each participant will write an objective for the activity performed between 10:00 - 10:30 A.M. of the same day.

   10 minutes

2. Show Popham's filmstrip Educational Objectives with response sheets.

   30 minutes

3. Show video tape of Walbesser's "Why Behavioral Objectives".

   20 minutes

4. Pass out "Characteristics of Behavioral Objectives".

   5 minutes

5. Pass out Walbesser's Objective 1 - page 85.

   5 minutes

6. Do Objective 1 - check response.

   15 minutes

7. Pass out Objective 2 - page 87.

   5 minutes

8. Do Objective 2 and check response.

   30 minutes

LUNCH BREAK

9. Do Objective 3 - check response.

   20 minutes

10. Do Objective 4 - check response.

    20 minutes

11. Do Objective 5 - check response.

    45 minutes

12. Show Raths tape of "Worthwhileness".

    20 minutes

13. Pass out Behavioral Objective on "How To Rob a Bank".

    5 minutes

14. Discussion.

Characteristics of Behavioral Objectives

A good behavioral objective includes the following components:

1. Who is to exhibit the behavior?
2. What observable performance (action) is the learner expected to exhibit?
3. What conditions, objects, and information is given?
4. Who or what initiates the learners performance?
5. What responses are acceptable?
6. What special restrictions are there on the acceptable response?

Does your objective exhibit the following:

	Yes	No
1. Whom?		
2. What performance?		
3. What is given?		
4. What or who initiates the performance?		
5. What are the acceptable responses?		
6. What special restrictions are there?		

ONE-HALF DAY PRESENTATION

BEHAVIORAL OBJECTIVES

Objective

At the end of this session participants will be able to identify components of a behavioral objective, given a definition of a behavioral objective.

Preparation

All participants should read Preparing Instructional Objectives by Robert Mager prior to attending the workshop.

Equipment Needed

Overhead projector
Screen
Tape recorder
Filmstrip projector
T-V monitor
Video tape recorder

Workshop Sequence (3 hours)

1. Each participant will write an objective for the activity performed between 10:00 - 10:30 A.M. of the same day.

   10 minutes

2. Show Popham's filmstrip Educational Objectives with response sheets.

   30 minutes

3. Show video tape of Walbesser's "Why Behavioral Objectives".

   20 minutes

4. Pass out "Characteristics of Behavioral Objectives".

   5 minutes

5. Pass out Walbesser's Objective 1 - page 85.

   5 minutes

6. Do Objective 1 - check response.

   15 minutes

7. Pass out Objective 2 - page 87.

   5 minutes

8. Do Objective 2 and check response.

   30 minutes

9. Have participants critique objective written at beginning of session and note answer on "Characteristics of Behavioral Objectives" sheet.

   30 minutes

10. Show Rath's Tape of "Worthwhileness".

    20 minutes

11. Discussion.

Appendix

Procedure for Follow-up Visits by State Department of Public Instruction Staff

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

DOVER, DELAWARE 19901

KENNETH C. MADDEN
STATE SUPERINTENDENT
PUBLIC INSTRUCTION

F. NIEL POSTLETHWAIT
DEPUTY STATE SUPERINTENDENT

January 18, 1971

ROGER C. MOWREY
PAUL M. HODGSON
HOWARD E. ROW
ASSISTANT SUPERINTENDENTS

TO:

FROM: Dr. Randall L. Broyles
Director Secondary Education

Charlotte H. Purnell
Supervisor Science

As part of the stipulations for participation in the May 26-28 follow-up conference of the Supervisors Training Program, participants must write a behavioral objective, plan activities to meet the objective and devise an assessment task for a particular aspect of their program. They must also tryout the sequence and gather data from all phases of their endeavor. You may recall that the participants were advised that a member of the State Department team would visit them in March and assess their progress and determine if an invitation should be offered for May. It is the intent of the three-day May meeting to give the interested participants an opportunity to apply their skills.

During the month of March would you visit the following participants:

It is suggested that during the early part of February the participant be advised of the pending March visit. Prior to your contact with the participant a letter will be sent informing the participant of your responsibility and what is expected of them.

For your convenience a check list is attached for your use. If the participant has done work on his own, encouragement should be given to try some of the skills and perhaps a later time could be arranged for a meeting or another mutually agreeable alternate procedure.

Please complete all visits by March 31 and return the check-lists to Mrs. Purnell.

Attachment
/ga

Name _____

School _____

Date of Visit _____

Submitted by _____

Yes	No	
___	___	Participant has reread C.B.O. to sharpen awareness of behavioral objectives.
___	___	Participant has written a behavioral objective for particular aspect of program.
___	___	Participant has devised instructional activities for the particular objective.
___	___	Participant has developed assessment task for particular objective.
___	___	Participant has used objective in the classroom and gathered data on outcome of objective.
___	___	Participant has written behavioral objectives for a teaching unit and tried out objective, attended activities and assessment tasks in the classroom.
___	___	Participant has ordered objectives into a hierarchy.
___	___	Participant will write objective activity and assessment task within two weeks and submit results.
___	___	Participant needs further assistance in preparing objectives.
___	___	Participant requests assistance in preparing objective, activities and assessment task.
___	___	Participant exhibits no interest or intention of applying behavioral objective skills to classroom practices.

Assessment

For our information in assigning participants to groups with the appropriate consultant, please rate the quality of the objective and the participants skill in using the objective.

Quality 1 2 3 4 5

Skills 1 2 3 5 5

Should be invited to May conference

1 2 3 4 5

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

DOVER, DELAWARE 19901

January 15, 1971

KENNETH C. MADDEN
STATE SUPERINTENDENT
PUBLIC INSTRUCTION

F. NIEL POSTLETHWAIT
DEPUTY STATE SUPERINTENDENT

ROGER C. MOWREY
PAUL M. HODGSON
HOWARD E. ROW
ASSISTANT SUPERINTENDENTS

Dear

During the time period November 16-20 _____ of _____ attended a training session at Buena Vista for the development of the skills in writing behavioral objectives and applying those skills to problem situations. At that time it was announced that a follow-up session would be held late in May. The purpose of this session would be to allow participants from the November conference the opportunity to develop areas of particular concern to them in terms of measurable, accountable objectives and activities. In order to receive an invitation to this conference, participants must prepare an objective and design activities and assessment tasks to meet the objective. They must try-out the sequence and gather data from all phases of the endeavor.

In order to assess progress and, in some cases, encourage efforts, members of the Department of Public Instruction have been asked to visit the participants in March. Prior to the visit the participant will be notified and a mutually acceptable time for the visit arranged.

At this time details for the May workshop are not firm; however, the objective of the development of readily usable, measurable units of activities suitable for immediate use in revamping a particular program of concern to the individual is still viable. When the details are firm proper notification will be sent to you.

We have been encouraged by the interest shown by your people and trust that it will continue to be manifest.

Sincerely yours,

Charlotte H. Purnell

Charlotte H. Purnell
State Science Supervisor

CHP:va
cc: Dr. K. Madden
Dr. P. Hodgson
Dr. R. Broyles

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

DOVER, DELAWARE 19901

January 15, 1971

KENNETH C. MADDEN
STATE SUPERINTENDENT
PUBLIC INSTRUCTION

F. NIEL POSTLETHWAIT
DEPUTY STATE SUPERINTENDENT

ROGER C. MOWREY
PAUL M. HODGSON
HOWARD E. ROW
ASSISTANT SUPERINTENDENTS

Dear

You may recall that at the conclusion of the November 16-20 training session for the development of the skills of writing behavioral objectives, it was stated that a follow-up session would be held late in May. The criteria for an invitation to this session would be the preparation of a good behavioral objective, planning of activities to meet the objective, and assessment tasks for the objective. In anticipation of the May session it is expected that the objective and concomitant activities would be tried out and data gathered from all phases of the endeavor.

You may also recall it was announced that a member of the Department of Public Instruction would visit you in March to determine your progress. The staff member who will be visiting you, _____, will discuss your progress with you and be available to offer assistance should you need additional help. Early in February you will be contacted by _____ to arrange a mutually agreeable time during March for the visit.

Since the purpose of the May meeting is to give you the opportunity to interact with the consultants in applying your skills to an area of particular concern to you, it is imperative that this preliminary assessment of your skills be made at this time. Such an assessment will aid the DPI staff in making groupings so that the follow-up session will be profitable to all.

Sincerely yours,

Charlotte H. Purnell
State Science Supervisor

CHP:va
cc: Principal
Curriculum Director

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Appendix

Newark Follow-up Session

Final Products for Task 19 (Example)

OGLETOWN JUNIOR HIGH SCHOOL
Newark, Delaware

Contract #1
Mini Course #1 -- Introductory Material On Behavioral Objectives
Level 3

As pointed out in the November 18, Curriculum Reports one of the main objectives of the Middle School should be to have students learn how to learn and utilize the skills learned in the elementary school. One method of having students obtain this goal is by constructing behavorial objectives. Constructing behavorial objectives is a device that derives its worth by actively involving a student through providing enough self-direction and self-pacing so that the teacher is free to meet the needs of individual students or small groups at their own level. The objectives are constructed by the teacher and are assumed to possess a functional role--description of the expected learning outcomes of the instruction in terms of reliably observable behavior.

RATIONALE FOR BEHAVIORAL OBJECTIVES

A number of ways exist to define the intent of a lesson. A lesson outline usually includes an aim or purpose of the intended behavioral outcomes of the student. It is reasonable to expect that a lesson is designed with a specific outcome in view. In order to clarify the outcome, the objective should be stated in such a way that an observer can determine whether or not the objective is reached. He can make this determination if the objective is stated in behavioral terms, without ambiguous verbs.

According to one estimate, the English language included possibly ten thousand action verbs. An unambiguous definition for each of these verbs is in no sense realistic. The verb "demonstrate" has such synonyms as prove, show, exhibit, illustrate, evince, manifest, display, present, and explain. To use all these verbs interchangeably would only add to the confusion and ambiguity. For simplicity, nine definable action words have been identified, in lieu of the possible thousands. These are as follows:

*IDENTIFY: select, by pointing to, touching, or picking up, a correct object of a class name.

*DISTINGUISH: identify objects or events that are possibly confusing, or when two contrasting identifications are concerned.

*CONSTRUCT: generate a construction or drawing that identifies a designated object or set of conditions.

*NAME: supply the correct name, oral or written, for a class of objects or events.

*ORDER: arrange two or more objects or events in proper order according to a stated category.

*DESCRIBE: generate and name all of the necessary categories of objects, object properties, or event properties that are relevant to the description of a designated situation. (The description should be usable to identify the object or event.)

*STATE A RULE: make a verbal statement that conveys a rule or principle, including the names of proper classes of objects or events in their correct order.

*APPLY A RULE: use a learned principle or rule to derive an answer to a problem.

*DEMONSTRATE: perform the necessary operations for the application of a rule or principle.

Any lesson of an average class duration of thrity to fifty minutes will show children exhibiting many behaviors that an observer could identify and catalog. It is the subjective decision of the originator of the lesson that determines the stated objective and matches it to a class activity. Any critic of the lesson could argue that this given stated objective is not as meaningful as some other. This is all the more reason for stating the objective in an unambiguous way.

A resultant objective which is unambiguous would need to be very specific. An observer should be able to recognize the close correlation between the stated student outcome, the lesson content, and the student activity. To aid in insuring a close association, the objective might contain a specific reference to (a) who is to exhibit the behavior, (b) the exact behavior to be exhibited, and (c) the limitations or provisions to be included in the activity.

NON-BEHAVIORAL OBJECTIVES

Words open to many interpretations (to be avoided in constructing Behavioral Objectives).

to know
to understand
to really understand
to appreciate
to fully appreciate
to grasp the significance of
to enjoy
to believe
to have faith in

What do you mean when you say you want a learner to know? Do you mean that you want him to recite, to solve, or to construct? Just to tell him you want to "know" tells him little--the word can mean many things.

Though it is all right to include such words as "understand" and "appreciate" in a statement of an objective, the statement is now explicit enough to be useful until it indicates how you intend to sample the "understanding" and "appreciating." Until you describe what the learner will be DOING when demonstrating that he "understands" and "appreciates," you have described very little at all. Thus, the statement that communicates best will be one that describes the terminal behavior of the learner well enough to preclude misinterpretation.

SIX COMPONENTS NECESSARY FOR THE CONSTRUCTION OF A BEHAVIORAL OBJECTIVE

Because a behavioral objective describes a desired learner behavior, six components are necessary to the successful construction of a behavioral objective.

1. Who is to exhibit the behavior?
2. What observable performance (action verb) is the learner expected to exhibit?
3. What conditions, objects and information is given?
4. Who or what initiates the learners performance?
5. What responses are acceptable?
6. What special restrictions are there on the acceptable response?

Now that you have background information; go back to Instructional procedures #3 and apply your newly acquired knowledge.

Good Luck.

OGLETOWN JUNIOR HIGH SCHOOL
Newark, Delaware

Contract #1
Mini Course #1 -- Identifying Behavioral Objectives
Level 3

I. **Objectives**

After 40 minutes of programmed instruction on constructing behavioral objectives, each member of the Ogletown Junior High School Faculty will be able to:

1. Identify behavioral objectives.
2. Distinguish between behavioral and a non-behavioral objectives.
3. Identify the six components necessary to the successful construction of a behavioral objective.

Criteria of Acceptable Performance 100%

II. **Resources and Materials**

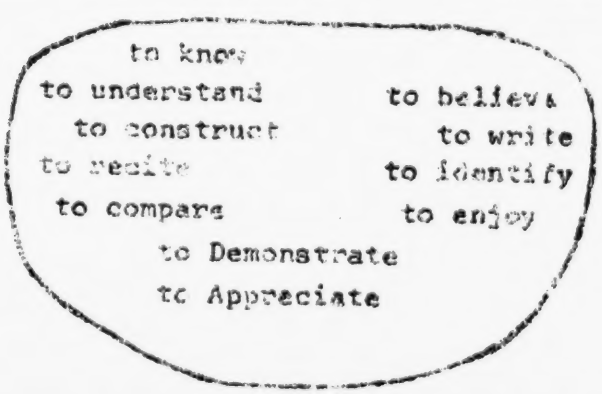
1. Overhead projector and transparencies (located in the rear of the Library).
2. Cassette Tape Recorder (located in front of library).
3. Introductory Materials (hand-out sheets) located on check-out counter.

III. **Instructional Procedures**

____1. Work in small groups of 2, 3, or 4.
____2. Make a choice of 1, 2, or 3 of the three methods for obtaining information on behavioral objectives.
____3. Use Worksheet #1 for obtaining the objectives in Mini Course #1, Level 3.
____4. Check and discuss with other members of your group your responses.

IV. **Assessment Task**

1. Identify all behavioral words in the circle by crossing out all the non-behavioral words.



2. Identify the six component parts in the behavioral objective below.

After an hour's instruction, an eight year old student will be able to identify symmetrical objects from asymmetrical objects. The student will be given twelve symmetrical and asymmetrical objects mixed together on a table. In two minutes, the student will place all symmetrical objects in one pile.

1. Who is to exhibit the behavior? _____

2. What observable performance (action) is the learner expected to exhibit? _____

3. What conditions, objects, and information is given? _____

4. Who or what initiates the learners performance? _____

5. What responses are acceptable? _____

6. What acceptable restrictions are there on the acceptable response? _____

Take your assessment to Mr. Williams or Mr. Comer for a check out.

You now have completed Mini Course #1 on behavioral objectives. If you are confused, you have only seen part of the picture, so don't worry. Mini Course #2 will be given on Tuesday, December 15 in the library. Please bring the materials in Mini Course #1.

WORK SHEET #1

I. The following are words used in constructing objectives. Distinguish between the behavioral and non-behavioral words by placing B.O. in the space after the word for a behavioral objective and N.B.O. after the word of each non-behavioral objective.

1. enjoy _____
2. Name _____
3. Construct _____
4. Believe _____
5. Identify _____
6. appreciate _____
7. Demonstrate _____
8. Arrange _____
9. understand _____
10. Distinguish _____

II. Identify each of the six component parts in the behavioral objective below. Place your answers in space after each component.

I. Objective

The five year old will be able to demonstrate a schottische movement around the classroom after being told to do so. He will move around the classroom in a walk, hop pattern repeating the pattern often enough to move all the way around the classroom.

II. Components

1. Who is to exhibit the behavior? _____

2. What observable performance (action) is the learner expected to exhibit? _____

3. What conditions, objects, and information is given? _____

4. Who or what initiates the learners performance? _____

5. What responses are acceptable? _____

6. What acceptable restrictions are there on the acceptable response? _____

Did you get 100% in your responses? Good, then go on to the assessment task in Mini Course #1.

WORK SHEET #1

I. Name the condition of learning in the space provided before the description of the condition.

Non-verbal response-pick out- show
_____Print letters-writing numerals.

_____A command to set the stage for a pupil to do something.

_____Distinguish, pick out the object that fits the request.

_____Provide the rule.

_____Student combines ideas of any sort and arrives at the new idea resulting from their combination.

_____To name--to tell

_____Acquisition of classifications of object properties, objects, and events.

_____Body, limb, and sound imitations.

II. Write a behavioral objective and then write an assessment task for the objective.

Objective

Assessment Task

You have now completed Mini Course #2. Still confused? Don't worry, vacation time is near.

Did you get 100% in your responses? Good, then go on to the assessment task in Mini Course #1.

OGLETOWN JUNIOR HIGH SCHOOL
Newark, Delaware

CONTRACT #2
Level #3
Introductory Material on Conditions of Learning and Assessment Tasks

Learning must be linked to the design of the instruction through consideration of the different kinds of capabilities that are being learned. In other words, the external events that are called instruction need to have different characteristics, depending on the particular class of performance change that is the focus of interest. There are eight distinguishable classes of performance change (learning) and the corresponding sets of conditions for learning that are associated with them.

Eight Types of Learning

Do all these varieties of learning apply to school instruction? The answer is yes, but some of them in rather specialized ways. It will not come as a surprise to the reader, perhaps, to learn that most instruction in school subjects is concerned with the learning and use of concepts and rules and with problem solving. The applicability of other learning types is also important, however, and needs to be stated briefly here.

Signal learning is thought by some investigators to be involved in very fundamental attitudes toward the school and the teacher. For example, Jensen (1968) has speculated that the early environment of some individual children may condition them to dislike the school environment, books, and other familiar appurtenances of the school room. As a further possibility, initial learning experiences of the child may have become attached, through conditioning, to unpleasant stimuli, and in this way the activities necessary for learning may have been unlearned or extinguished. Likes and dislikes can be acquired through signal learning according to other evidence, and this particular possibility, having such a fundamental importance for the future learning of the child, cannot be ignored. Otherwise, as has been mentioned, signal learning may be of positive usefulness in establishing the common "signals" to be used by the teacher in setting the stage for attention, rest periods, or other regularly occurring events.

A large repertoire of well-practiced stimulus-response connections is already possessed by the child when he enters school. The young child can, for example, imitate many essential body and limb movements, and also vocal sounds, at a minimum. These connections are important for further learning, but they have typically been learned in earlier childhood. But some vocal sounds may not have been learned, and it is necessary for the child to acquire these early during his school years. Simple Ss--R's of hand movements, arm movements, and directional movements of the body may also have to be acquired in the earliest months of school. Beyond these, one must look for rather special situations to find examples of the learning of simple connections. When a foreign language is being learned, the acquiring of a correctly pronounced unfamiliar sound (such as the French in) appears to be a reasonable example of Ss--R learning.

Examples of motor chain and verbal associate learning are not difficult to locate in the context of the school. In the elementary grades, printing letters is a good example of the former, learning the names of the numerals 1-9 in order, an example of the latter. Motor chains must be learned at various stages of school learning, for example, when the student must acquire proficiency in operating and adjusting a scientific instrument. Verbal chains may be learned as memorized formulas or as foreign idiomatic expressions of common usage. It may be noted that such forms of learning do occur throughout all grades, and at the same time that their frequency is relatively low compared with other types.

Discriminations are some of the most important capabilities acquired by young children, who need to learn to distinguish the properties of a great variety of objects and living things, so that they can readily tell round from square, blue from green, three from two. At higher levels, one finds discriminations again of particular importance in distinguishing foreign sounds of the sounds of the native language and in various scientific observations.

Concept learning refers to the acquisition of classifications of object properties, objects, and events. Concepts may be concrete or defined. Beginning in the early grades and throughout his school career, the student will be asked to classify many things and events, from numbers to beetles to families to nations and forms of government. This type of learning is obviously a most pervasive one.

Rule learning has an equally frequent, if not greater, occurrence in the school. The operations that the student learns in dealing with objects, numbers, words, and abstract concepts all involve behavior that is rule-governed.

Problem solving should be, and usually is, a highly frequent kind of learning in the school. Whenever the student is encouraged to combine ideas of any sort and independently arrives at the new idea resulting from their combination, he may be said to be solving a problem.

These types of learning are distinguished because each requires somewhat different conditions of instruction for most effective learning. Good instruction is planned so that these different conditions, applicable to what is being learned, are clearly represented. For a child to learn to distinguish a rectangle and a square (type 5), for example, quite different conditions of instruction are required from those needed for him to learn a rule for finding the area of a rectangle (type 7).

Assessment Tasks

The purpose of an assessment task is to provide evidence on whether an individual has acquired the behavior described in the objective. The responsibility for constructing assessment tasks best resides with the author of the objective.

What are the characteristics of an assessment task? First, an assessment task is derived from a behavioral objective. Second, the assessment task should evaluate the presence or absence of the behavior described by the objective. The statement of every behavioral objective should be accompanied by several assessment tasks.

Assessment Tasks

Each task used in the assessment of whether or not a particular behavior has been acquired should call for the same performance class as the one identified by the action verb in the objective. If the objective is identify, the assessment task should request the learner to select or choose or pick out from a given collections.
Example of two simple assessment tasks from a simple Behavioral Objective.

Behavioral Objective

After an hour's instruction, an 8 year old will be able to identify symmetrical objects from asymmetrical objects given twelve symmetrical and asymmetrical objects on a table. In two minutes the student will be able to place all symmetrical objects in one pile.

Assessment Task #1

After two minutes time an 8 year old student will be able to identify four symmetrical objects and four asymmetrical objects which are located on the board. The student will identify the objects in front of two other students who have done this task.

Assessment Task #2

After five minutes an 8 year old student will be able to pick out six symmetrical objects and six asymmetrical objects which are located in the room. The student will pick out the six symmetrical and six asymmetrical objects in front of the teacher.

OGLETOWN JUNIOR HIGH SCHOOL
Newark, Delaware

CONTRACT #2
Mini Course #2--Eight Conditions of Learning and Constructing in Assessment Tasks

I. Objectives

After 40 minutes of programmed instruction on the eight conditions of learning and constructing Assessment Tasks each member of the Ogletown Junior High School faculty will be able to:

1. Identify the eight conditions of learning.
2. Construct a behavioral objective and two assessment tasks for the objective.

Criteria for Acceptable Performance--100%

II. Resources and Materials

1. Cassette Tape Recorder (located in front of the library)
2. Introductory material (hand-out sheets) located on the check-out counter.
3. Work Sheet #1 located on the check-out counter.

III. Instructional Procedures

Complete the Instructional Procedures before you do the Assessment Task.

____1. Work in teams of 4 or 5 as listed on the last sheet of this course.
____2. Choose method 1 or 2 listed under Resources and Materials for Introductory Material.
____3. Use Work Sheet #1 for practice in obtaining the objectives in Contract #2, Mini Course #2, Level 3. Work sheets are on the check-out counter.
____4. Check and discuss with other members of your team your responses on the Work Sheet #1.

IV. Assessment Task

A. 1. This task engages you in an examination of written instructional activities for the purpose of identifying instances of the eight learning types.

Recall the eight learning conditions: 1. Signal learning; 2. Stimulus response; 3. Chaining; 4. Verbal chains; 5. Multiple discrimination; 6. Concept learning; 7. Principle learning; 8. Problem solving.

Below is a list of various examples that can be classified under one of the eight conditions of learning. Place your number response in the space provided.

_____1. Name in order the first 10 numbers.
_____2. Classify angles as acute, right, or obtuse.
_____3. Draw a circle with a compass.
_____4. Draw the graph of $3 \sin 2x$.
_____5. Having proved that two triangles are congruent when two angles and the included side are congruent pairs are two angles and a not-included side.

Assessment Task

_____6. "Johnny hit me." Tommy said, "And I'm mad."
_____7. State the conditions for two triangles to be congruent.
_____8. Measure the length of a line segment.

B. Construct a Bheavioral Objective and two assessment tasks for the objective.

Objective

Assessment Task

Assessment Task

OGLETOWN JUNIOR HIGH SCHOOL
Newark, Delaware

TEAM #1 - Donald Allen
Thomas Hickey
Elwood Statler
Judy Walls
Bernard Kosc

TEAM #2 - Lewellyn Bowen
Dan Chapman
Patrick Downes
Charles Goudy
Agnes Smith

TEAM #3 - Patricia Clements
Carol Pufhl
Harry Lackhove
Roslyn Rogers
Greg Yulduzian

TEAM #4 - Sharon Allen
James Murry
Kathleen Everett
Peter Shannon
Lois Fritsche

TEAM #5 - Jack Christie
William Reister
Kermit Schilling
Linda Stigile
John McMeekan

TEAM #6 - Frank Bradley
Paula Bynkett
Thomas Concavage
Eva Herron
Jean Rossiter

TEAM #7 - Helen Brelick
Diane Brubaker
Michael D'Amico
Mary Alice Hinerman
Frank FitzGerald

TEAM #8 - Suzanne Casarino
Norman Handy
John Strein
Larry Mackney
Paul Fenstermaker

TEAM #9 - Ann Lawson
Clyde Louth
Judy Luzak
Betty Moudy
Richard Kennedy

TEAM #10 - John Evans
Chris Rogge
Harry Squatrito
Charlotte Gordon
William Zagar

Appendix

Follow-up Session

May 26-28, 1971

STATE OF DELAWARE

DEPARTMENT OF PUBLIC INSTRUCTION

DOVER, DELAWARE 19901

KENNETH C. MADDEN
STATE SUPERINTENDENT
PUBLIC INSTRUCTION

F. NIEL POSTLETHWAIT
DEPUTY STATE SUPERINTENDENT

April 14, 1971

ROGER C. MOWREY
PAUL M. HODGSON
HOWARD E. ROW
ASSISTANT SUPERINTENDENTS

TO:

FROM: Mrs. Charlotte H. Purnell
Director of Del Mod System

Dr. Randall L. Broyles
Director of Secondary Education

SUBJECT: BEHAVIORAL OBJECTIVES CONFERENCE

The follow-up conference on behavioral objectives will be held on May 26-28 at the Cape Henlopen Hotel in Rehoboth Beach. This conference is part and parcel of the five-day training session originally held during the week of November 16, 1970.

The basic purpose for this conference is to provide the participants from the November session with the opportunity to accomplish the following:

1. Sharing of the information and materials relating to Assessment Task for Objective Nineteen.

2. Ordering performance/behavioral objectives into a hierarchy and applying validation techniques.

3. Applying skills acquired in the initial training session to current curriculum developments within local school districts through the construction of performance/behavioral objectives for a given segment of the curriculum and arranging them in a hierachial order.

4. Establishing relationship of performance/behavioral objectives to the overall instructional areas of science, mathematics, humanities, and related areas.

5. Constructing effective teaching strategies and techniques emphasizing the performance/behavioral outcomes approach.

6. Developing inservice training programs for classroom teachers to assure constructive and comprehensive approach to structuring behavioral/performance objectives.

7. Organizing a statewide approach for curriculum improvement through the utilization of performance/behavioral objectives and their related components.

You have been selected to attend the follow-up conference as the result of your efforts and accomplishments since the November training session. Participation in the May conference was part of the commitment for attending the initial session.

Would you, therefore, complete the information on the enclosed postcard and return as soon as convenient but no later than Friday, April 30, 1971. All expenses, except lunches, will be defrayed. It is also necessary that all participants be in full attendance during the three-day session; however, it is not imperative that a participant stay overnight at the end of each day and evening session.

The complete agenda and other pertinent information will be forwarded to you during the second week of May.

Enc.
RB/lm

STATE DEPARTMENT OF PUBLIC INSTRUCTION
SECONDARY EDUCATION DIVISION

Behavioral Objectives Training Program

AGENDA

A. Wednesday - - May 26

9:00 - Introductions and Welcome

9:15 - Review - - Dr. Jim Raths

9:30 - Preview - - Dr. Henry Walbesser

9:45 - Quality Space Matrix - - Cognitive Domain

COFFEE PAUSE

10:30 - TASK A - - Examination of a Variety of Objectives

12:00 - TASK B - - Choice Of Objectives

12:00 - LUNCH

1:30 - Performance Class Verbs - - Affective Domain

TASK C - - Discriminating among Categories

TASK D - - Constructing Original Verbs

TASK E - - Classifying Complete Matrix from a Variety of Objectives

TASK F - - Classifying Complete Matrix from Choice of Objectives

COFFEE PAUSE

3:30 - Performance Class Verbs - - Psychomotor Domain

TASK G - - Discriminating among Categories

TASK H - - Constructing Original Verbs

TASK I - - Classifying Complete Matrix from a Variety of Objectives

TASK J - - Classifying Complete Matrix from Choice of Objectives

6:00 - DINNER

7:30 - Developments in Behavioral Objectives - - Dr. David Lockard

B. Thursday - - May 27

8:30 - Learning Hierarchy - - Task Analysis

9:30 - TASK K - - Complete Task Analysis of Objectives at Complex Level

10:30 - COFFEE PAUSE

10:45 - Study Session - - Validating Procedures

TASK L - - Analysis of Data

12:00 - LUNCH

1:30 - Development of 3 Terminal Objectives - - All Domains - - for Common Instructional Concerns (Small Groups)

TASK M - - Identity of Terminal Objectives
Task Analysis
Assessment Task
Instructional Activity

6:00 - DINNER

7:30 - Program Evaluation and Review Techniques

C. Friday - - May 28

8:30 - Continuation of TASK M

10:30 - COFFEE PAUSE

Continuation of TASK M

12:00 - LUNCH

1:30 - TASK N - - Plan of Implementation - - Construction of PERT Chart

2:30 - Concluding Remarks and Plans

SCHOOL DISTRICT	HOME ADDRESS	TO ATTEND 5-26-71 to 5-28-71
WILMINGTON		
1. Harrison, Dr. Arrie	2410 Silverside Rd. Chatham Estates Wilmington, Delaware 19803	yes
2. Reed, Phillip	300 E. Marshall St. West Chester, Pa. 19380	yes
3. Scarnato, Dr. Sameul	504 Rockwood Rd. Brandywine Hills Wilmington, Del. 19802	yes
MT. PLEASANT		
1. Sherman, Lucille K. (Mrs.)	1426 Fresno Road Green Acres Wilmington, Del. 19809	yes
CLAYMONT		
1. Rooney, Richard	2020 Longcome Dr. N. Graylyn Crest Wilmington, Del.	yes
CAESAR RODNEY		
1. Benner, George	126 Shadow Court Crossgates Dover, Delaware 19901	yes
2. Geppert, William	Brookdale Heights Camden, Delaware 19934	yes
SEAFORD		
1. Ellis, Arthur	Hantfutrker Drive Delmar, Del. 19940	yes
2. Deputy, A. John	734 Rose Tree Lane Seaford, Del. 19973	yes
3. Hitchens, William	Rt #1, Box 149-B Laurel, Del. 19956	yes
APPOQUINIMINK		
1. Abell, Roberta	64 Welsh Tract Rd. Apt. 306 Newark, Delaware 19711	yes

NEW CASTLE - GUNNING BEDFORD
Blount Road
New Castle, Delaware 19720

			Attending
1.	Johnson, Janet	(use district address)	yes
2.	Lupin, Dr. Pearl S.	(" " ")	yes
3	Roberts, Meredith	6 Riverside Drive Riverside Gardents Wilmington, Del.	
4.	Wilson, Hess	(use district address)	yes

DIOCESE OF WILMINGTON
Department of Education
1626 N. Union St.
Wilmington, Delaware19806

1.	Gallagher, Sister Irene	(use district address)	yes
2.	Judith, Sister	St. John Beloved School 505 Milltown Rd., Sherwood Pk.	yes

DELAWARR

1.	Hamrick, Eldon	17 Anglin Drive Newark, Delaware 19711	yes
2.	Carey, Edwin	224 Mendell Langollen Estates Wilmington, Del. 19720	yes

NEWARK

1.	Carlson, Paul	12 Winchester Rd. Newark, Del. 19711	yes
2.	Schneck, Donald	2300 Sherman Rd. Kiamensi Gardens Wilmington, Del. 19804	
3.	Shields, Mildred B.	102 Bent Lane Newark, Delaware 19711	yes
4.	Walzl, F. Neil	7 Fairway Rd., Apt. 2-A Newark, Del. 19711	yes
5.	Williams, Robert	68 Welsh Tract Rd. Newark, Delaware 19711	yes

MARSHALLTON-MCKEAN

None

ALEXIS I. DUPONT

Collison, Sidney B.		410 New London Rd. Fairfield Crest Wilmington, Del.	yes

SCHOOL DISTRICT	ADDRESS	ATTENDING
ALFRED I. DUPONT		
1. Andrews, James	2662 Bittersweet Dr. Wilmington, Del. 19810	yes
2. Fitzgerald, Ellen	123 North Rd. Lindamere Wilmington, Del. 19809	yes
3. Nejako, Frank	71 S. Avon Drive Ashburg Hill Claymont, Del. 19703	yes
4. Schoedler, James	2207 Greenstone Rd. Brandywine 19810	yes
WOODBRIDGE		
307 Laws St., Bridgeville, Del. 19933		
1. Goodwill, Violet N.	(use district address)	yes
2. Parks, Charles	(use district address)	yes
INDIAN RIVER		
1. Keen, George H.	W. Pine St. Georgetown, Del. 19947	yes
2. Ward, Donald	Sussex Central Jr. High State St. Millsboro, Del. 19966	yes
3. Mahan, Ralph	526 N. Shipley Rd. Seaford, Delaware 19973	yes
MILFORD		
1. Justice, Margaret	Milford District 906 Lakeview Ave. Milford, Del. 19963	yes
2. Kerr, James R.	Lincoln, Delaware	yes
3. Warrington, Donald J.	Milford-Harrington Rd. Milford, Del. 19963	
SMYRNA		
NONE		

Appendix

Summer Follow-up Sessions in Districts (Example)

SEP 24 1971

SEAFORD SCHOOL DISTRICT
Seaford, Delaware

September 22, 1971

TO: Dr. Randall Broyles, Assistant State Superintendent

FROM: Arthur Ellis, Curriculum Supervisor
A. John Deputy, Principal Seaford Junior High

SUBJECT: Report - Seaford Junior High
School Leadership Training Workshop

Workshop Objective

Given materials, facilities, and instructional and financial assistance, one science teacher, one social studies teacher, and two language arts teachers in the Seaford Junior High School will construct at least ten performance objectives in each of their disciplines. Financial assistance shall be limited to $1000.

The response will be acceptable when:

1. The objectives are in accordance with the District definition of a performance objective.

2. The objectives are in accordance with the Seaford Junior High School Philosophy.

Workshop Activities

1. On March 17, 1971 a workshop was held for all staff members in the Seaford Junior High School. The purpose was to introduce the concept of performance objectives and the District definition of a performance objective. A thorough review of that workshop was conducted with the participants in the Leadership Training Workshop. Also reviewed at this time was the Junior High Philosophy which emphasizes the acquisition of skills and concepts. The workshop objective was discussed along with activities necessary for it's successful completion.

2. The participants listed appropriate skills, in each of their disciplines, which they believe should be acquired by junior high school students. It is our belief that objectives should not be constructed until skills are identified for which objectives will be written. In some cases participants listed specific skills which were incorporated in broad skill areas. In other cases broad skill areas were identified from which specific skills were listed. Sample lists are included in the enclosed products.

3. An interdisciplinary discussion was held to compare the skill

lists that had been constructed for each discipline. The high degree of similarity was both desirable and pleasing.

4. The participants then proceeded to construct appropriate objectives based on the skills each had listed. Communication between the participants, principal and supervisor was an important aspect of this phase of the workshop. Product rather than process was constantly emphasized.

5. The participants were introduced to the concept of learning hierarchies. The purpose was to familiarize them with the need for objectives to be arranged in a sequence of learning experiences for the student.

6. In that two language arts teachers participated they were asked to construct: (1) an outline for the construction of an independent study unit; (2) an evaluation form for an individual study unit, and; (3) a diagnostic test sample.

Results

1. Skill lists for each discipline were constructed. (Samples enclosed)

2. The performance objective for the workshop was met. (Samples of objectives for each discipline are enclosed.)

3. An outline for construction of an individual study unit was constructed. (Outline enclosed)

4. An evaluation form for an individual study unit was constructed. (Evaluation form enclosed)

5. A sample packet for language arts was constructed. (Packet enclosed)

Follow-up

It was not the objective of this workshop that everything produced be mechanically perfect, nor that the products be final. In addition to fulfilling its objective the workshop has provided, by its products, a program base, for the three disciplines, from which all members of the departments can build.

The constructing of performance objectives, editing, arranging in sequence and coordinating them into a multidisciplinary program is and will continue to be priority activities in the Seaford Junior High School. The development of activities and assessment tasks, to assure the success of instruction, is also vitally important as well as testing the objectives at the classroom level.

Although this work will continue throughout the school year next summer will again bring the need for financial assistance to expand the work of this past summer and refine the products of this school year.

We hope that our obvious commitment to the improvement of instruction, as evidenced by the results of this workshop will place us in a position to be considered for further financial assistance. We welcome your comments about the workshop and if you have questions not answered in this report please feel free to contact either of us. Your interest and assistance has, and will continue to be, greatly appreciated.

SEP 15 1971

Kent County Vocational-Technical Center

P.O. Box 97 • Woodside, Delaware 19980 • 302 697-3255

MR. WILLIAM PFEIFER
Superintendent

MR. JOSEPH ORLANDO
Administrative Assistant

MR. EUGENE COLE
Principal

MR. THEODORE PERRY
Associate Principal

September 10, 1971

Dr. Randall Broyles
Assistant Superintendent
State Dept. of Public Instruction
Dover, Delaware 19901

Dear Dr. Broyles:

Enclosed you will find the requested information in regard to our inservice program on performance objectives. The agenda for the work sessions which included the activities of the consultant plus the summary of outcomes, is also included.

May I add that Dr. Sam Leles is one of the finest experts and teachers that I have ever seen on performance objectives. The time he spent with us showed very positive results and is even now paving dividends in the curriculum development with our staff.

Yours truly,

Eugene M. Cole

Eugene M. Cole
Principal

EMC:jmd

Enclosures

The following describes the program for use with our staff and activities of Dr. Sam Leles:

1. Why a Vocational Education Curriculum Based on Behavioral Objectives?
2. Establish Workshop Participants' Level of Information About Measurable Objectives
3. Rationale For BO Writing
4. Identifying Behavioral Objectives
5. Criteria and Characteristics of Behavioral Objectives
6. Constructing and Using Behavioral Objectives
7. Variation in Time Intervals in Learning
   a. Conventional or Regular Curriculum
      compared to
   b. Vocational Education Curriculum
8. Participants Will Use Exercise Designed to Develop Vocational Education Objectives
   a. The Exercise Incorporates Principles Appropriate to Learnings Based on a Combination of Skills and Uncerstandings
9. Feedback and The Instructional Process
10. Baseline Date and the Curriculum Model
11. Use the Model to Build Vocational Curriculum Units

Included is a copy of each item of material that will be used in the workshop. Please re-produce in quantity so that I can distribute a copy of each item to each participant during the course of the workshop. Please do not package or group the materials for distribution of everything at one time. The following is a list of materials to be re-produced:

1. Criterion Test I (yellow sheet)
2. Criterion Test II (Green sheet)
3. Criterion Test III (White sheet)
4. BO Test - Form RD
5. Answer sheet for BO Test - Form RD (re-produce so as to have 2 answer sheets/participant
6. Model of the Instructional Process
7. Descriptive Model of Curriculum
8. 3 C's of BO Writing
9. Exercise for Distinguishing Cognitive, Affective and Paychomotor Learnings
10. List of Defective Instructional Objectives
11. Exercise for Developing Vocational Education Objectives
12. Developing a Curriculum Unit Based on Behavioral Objectives

I will provide the slides and tapes essential to certain segments of the program. I would appreciate it if you would see to it that we have the following equipment:

1. An over-head projector with either a white wall or screen.
2. A tape recorder playing 7 inch reels.
3. A carousel Kodak slide projector with several trays that utilize 80 slides, each.

In planning and organizing this workshop, I have kept in mind your request to keep the language simple and the concepts relevant to vocational education. I think the materials selected and produced will do that. If you have any question regarding the program, please feel free to contact me.

BO TEST - FORM RD

N-33
(Matched Scores)

Kent County Vocational-Technical
High School Staff
Woodside, Delaware
August 17-18, 1971

University of Alabama
Consultant - Sam Leles

Participants	Raw Scores Pre	Post	Change		Group Measures Pre	Post
Fortier, Robert	17	18	+ 1			
Dodenhoff, Ray	17	18	+ 1	Mean	13.45	17.36
Warrington, Floyd	17	16	- 1	Median	14	18-
Skinner, Charles	17	16	- 1	Mode	15	19
Hill, James	16	19	+ 3	Range	5-17	13-21
Fitch, Joyce	16	13	- 3	SD	2.6	1.8
Rummell, George	15	18	+ 3			
Foulk, Lambert	15	19	+ 4			
Webb, Francis	15	19	+ 4			
Myers, Wilbur	15	16	+ 1			
Bures, Vera	15	19	+ 4			
Phelps, Seaton	15	16	+ 1			
Hall, Jeanette	15	17	+ 2			
Stubbolo, Louis	15	18	+ 3			
Chadwick, Harry	14	17	+ 3			
Luckhurst, Donald	14	19	+ 5			
Osborne, Margaret	14	18	+ 4			
Evans, Gary	14	18	+ 4			
Dodenhoff, Edgar	14	19	+ 5			
Kroble, Gerald	13	--	---			
Wilgus, Jo	13	19	+ 6			
Hickerson, Melvin	13	17	+ 4			
Dickerson, Herman	13	19	+ 6			
Garrison, Gamaliel	12	17	+ 5			
Shannon, Ernest	12	16	+ 4			
Wardlaw, McKinley	12	13	+ 1			
Lupia, J. A.	12	20	+ 8			
Luttan, Henry	11	21	+10			
Bailey, M. K.	11	17	+ 6			
Kelley, E. James	11	17	+ 6			
Muehleisen, Bill	11	--	---			
Robertson, Frances	10	15	+ 5			
Sweeney, George	10	15	+ 5			
Evans, Henry	9	16	+ 7			
Moller, Chuck	5	18	+13			
Pritchard, David						

The participants as a learning group (N-33), showed growth of 3.91 in mean scores, or an increase of 29 percent measuring knowledge information, and understanding about behavioral objectives. In addition, the S.D. (Standard Deviation or Spread) of knowledge held by the group (N-33) about measurable objectives was reduced 1.8 or by 31% This suggests that the staff holds information, knowledge, and understanding about measurable objectives that is more uniform, consistent and less "spread-out" after the workshop than before the workshop on objectives.

Furthermore, this test provides some clues as to which participants have sufficient knowledge and understanding about BO to write measurable objectives. Generally, though not in all cases, a score of 18 and larger indicates such capability.

Finally, it is interesting to not that 30 of 33 participants, or 90% of the group, indicated progress in the workshop as measured by individual Pre - Post Test scores.

Appendix

Follow-up Workshop for Career Education

August 16-20, 1971

OBJECTIVES OF THE WORKSHOP

After three days of instruction, the classroom teacher will be able to:

1. Discriminate between objectives, activities and assessments that are stated in terms of observable performance and those which are not.

2. Construct performance objectives in his own discipline for each of the conditions that apply to his subject given Gagne's conditions of learning.

3. Construct learning and assessment tasks that are in performance agreement with the objective given a performance objective.

4. Construct behavioral objectives in his discipline which have enough transferability that he can construct at least two learning activities and two assessment tasks that are appropriate and in performance agreement.

5. Discriminate between subordinate and terminal objectives.

6. Order a tentative learning hierarchy, given subordinate and terminal objectives.

Terminal Objective:

After completing units 1-10 in the manual, Constructing Instruction Based On Behavioral Objectives - A Manual for Managers - Walbesser, Kurtz, Goss, Robl, the classroom teacher will:

1. Construct a terminal behavioral objective for a concept important to his discipline. The objective will have enough transferability that tasks three and four may be accomplished.

2. (a) Identify subordinate objectives leading to his terminal objective; and (b) Order a tentative learning hierarchy in performance agreement.

3. Construct two learning activities within the hierarchy that will help the student acquire the two or one of the stated objectives.

4. Construct two assessment tasks for the objective that are appropriate and in performance agreement.

The teacher may work in small groups and call on consultants and supervisors for aid.

Activities

In the course of the first three days, teachers worked through the manual individually or in small groups. Dr. John Ransom, a consultant from Kansas State University, helped clarify concepts; subject area supervisors and project coordinators worked with the teachers to help them assess their understanding as they demonstrated competence in each step of the programmed instruction.

On Thursday, teachers within each discipline formed small groups according to the individual subjects each teaches; their goal was to identify roughly ten concepts basic to all students taking their course.

Each teacher - alone or in a small group - then selected one concept, constructed a terminal objective in behavioral terms, and ordered a learning hierarchy. Within the hierarchy each selected an objective which would develop into roughly two weeks of learning and constructed two learning activities and two appropriate assessment tasks in performance agreement.